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Congenital Cardiology Solutions

SURGICAL MANAGEMENT OF ATRIOVENTRICULAR SEPTAL DEFECTS WITH AORTIC ARCH OBSTRUCTION IN NEONATES: A MULTICENTER STUDY

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Background: For neonates with atrioventricular septal defect (AVSD) and aortic arch obstruction thought to be candidates for a two ventricular repair, surgical options include a primary repair or a staged approach involving initial arch repair followed by delayed AVSD repair. We sought to determine whether a difference in outcomes exists depending on surgical approach.

Methods: In this retrospective cohort study, we included 66 consecutive neonates with AVSD and aortic arch obstruction who underwent surgery prior to 28 days of age at six centers from 1990-2009 (four centers) and 1999-2009 (two centers). Characteristics and outcomes between patients undergoing primary vs. staged repair were compared.

Results: Of 66 study patients, 31 (47%) underwent primary and 35 (53%) underwent staged repair. At initial presentation, compared to the primary repair group, those who underwent staged repair were more likely to receive prostaglandin E1 prior to the first operation (82% vs. 60%, p=0.047). There were no other differences in demographic characteristics, cardiac anatomical details, severity of baseline atrioventricular valve regurgitation, or surgical technique. Those undergoing primary repair were more likely to have a least moderate mitral regurgitation early after repair (42% vs. 17%, p=0.03), require an unplanned cardiac re-operation during the initial hospitalization or follow-up (45% vs. 15%; p=0.009), and tended to have one or more major complications (42% vs. 20%; p=0.053). Compared to staged repair patients, those undergoing primary repair tended to be more likely to die during a cardiac surgical hospitalization (26% vs. 9%; p=0.06). At a median of 2.0 years (range 0-15.2) of follow-up, overall mortality at follow-up was higher (35% vs. 14%; log rank p=0.02). There was no association between later era and surgical approach or mortality.

Conclusions: For neonates with AVSD and aortic arch obstruction, when compared with primary repair, a staged approach involving initial arch repair followed by delayed AVSD repair was associated with lower overall morbidity and mortality.